

## CLAIMS

What is claimed is:

1. A method for testing code comprising:  
instrumenting code to output checkpoints at selected points during execution of said code on a processor device to derive individual test checkpoints; and  
generating a signature using said checkpoints.
2. The method of claim 1 wherein said checkpoints comprising said signature are arranged in an order of execution of functions associated with said checkpoints.
3. The method of claim 2 further comprising comparing said signature against an expected signature for said code.
4. The method of claim 4 wherein said comparing comprises comparing order of execution of said functions of said code.
5. The method of claim 4 wherein said comparing is carried out offline.
6. The method of claim 1 further comprising repeating said execution of the instrumented code and said generating on a second processor device, commonly configured to first said processor device.
7. The method of claim 6 further comprising comparing signatures, from execution of said code on each of said processor devices, against each other.
8. The method of claim 1 further comprising:  
instrumenting a successive version of said code for execution on said processor device to derive a successive stream of test checkpoints;  
generating a successive signature using said successive checkpoints; and  
comparing said successive signature against first said signature.
9. The method of claim 8 wherein said checkpoints comprising said first said signature and said successive signature are arranged in an order of functions associated with said checkpoints.

10. The method of claim 1 further comprising:  
instrumenting a successive version of said code for execution on a second processor device, commonly configured with first said processor device, to derive a second stream of test checkpoints;  
generating a successive signature using said successive checkpoints; and  
comparing said successive signature against said signature.
11. The method of claim 10 wherein said checkpoints comprising said first signature and said successive signature are arranged in an order of execution of said functions associated with said checkpoints.
12. The method of claim 1 further comprising:  
comparing said signature against an archived signature for said code.
13. The method of claim 12 further comprising:  
detecting, by said comparing step, modifications to said code.
14. The method of claim 12 further comprising:  
debugging said code based on differences in said signature and said archived signature.
15. The method of claim 1 further comprising:  
identifying said code from said signature.
16. The method of claim 1 further comprising:  
identifying a function of said code from a portion of said signature.
17. The method of claim 16 further comprising:  
mapping a function of said code by placement of at least one of said checkpoints in conjunction with said function.
18. The method of claim 17 wherein said instrumenting further comprises placing one checkpoint before said function and another checkpoint after said function.
19. The method of claim 17 further comprising:  
determining code functions executed by said processing device by identifying output of checkpoints placed in conjunction with said functions.

20. The method of claim 19 further comprising:  
deriving execution paths of said code from said signature through order of execution of said functions.

21. The method of claim 17 further comprising:  
detecting an error in execution of said code by identifying output checkpoints placed in conjunction with an error path function of said code.

22. The method of claim 1 further comprising:  
archiving said signature;  
merging said instrumented code to a second processor platform;  
executing said instrumented code on said second processor platform to derive a second stream of individual test checkpoints;  
generating a second signature using said second stream of checkpoints; and  
comparing said second signature against said archived signature.

23. The method of claim 22 wherein said checkpoints comprising said archived signature and said second signature are arranged in an order of execution of said tests.

24. The method of claim 1 wherein said processor device is a computer.

25. The method of claim 1 wherein said processor device is a simulator.

26. A system for testing code comprising:  
an under test processor based device executing said code, wherein said code is instrumented to output checkpoints at selected points during execution, said processor device adapted to output said checkpoints in a stream; and  
an external processor device receiving said output checkpoint stream and deriving a checkpoint signature for execution of said code from said stream.

27. The system of claim 27 wherein firmware of said under test processor based system provides said code.

28. The system of claim 27 wherein said under test processor based device executes said code as part of a simulation of another processor based device.

29. A method for merging code from a source processor platform to a target processor platform said method comprising:

- implementing said code to output checkpoints at selected points during execution of said code on a target processor platform to derive a stream of individual test checkpoints;
- generating an ordered signature using said checkpoints; and
- comparing said signature against an archived signature derived from successful execution of said code on a source processor platform.